

# DIET, NUTRITION, PHYSICAL ACTIVITY AND BREAST CANCER SURVIVAL – ALL CAUSE MORTALITY

		DECREASES RISK		INCREASES RISK	
		Exposure	Cancer site	Exposure	Cancer site
<b>STRONG EVIDENCE</b>	Convincing				
	Probable				
<b>LIMITED EVIDENCE</b>	<b>Limited – suggestive</b>	Physical activity	Before diagnosis	Body fatness	Before diagnosis
			≥12 months after diagnosis		<12 months after diagnosis
		Foods containing fibre	Before diagnosis	Total fat	≥12 months after diagnosis
			≥12 months after diagnosis		Before diagnosis
Foods containing soy	≥12 months after diagnosis	Saturated fatty acids	Before diagnosis		
<b>STRONG EVIDENCE</b>	<b>Substantial effect on risk unlikely</b>				

**STRONG:** Evidence strong enough to support a judgement of a convincing or probable causal relationship and generally justify making recommendations

**LIMITED:** Evidence that is too limited to justify making specific recommendations

## Age standardised 5-year survival percentage

	Liver	Lung	Breast	Colon
<b>UK<sup>1</sup></b>	9%	10%	81%	54%
<b>USA<sup>1</sup></b>	15%	19%	89%	65%
<b>China<sup>2</sup></b>	13%	18%	81%	55%
<b>Australia<sup>1</sup></b>	15%	15%	86%	64%
<b>South Africa<sup>3</sup></b>	10%	19%	53%	–
<b>Brazil<sup>4</sup></b>	12%	18%	87%	58%

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<sup>1</sup> Population covered >80%, <sup>2</sup> Population covered 3%, <sup>3</sup> Population covered 2%, <sup>4</sup> Population covered 6%

## Summary of CUP 2014 meta-analyses of diet, nutrition and physical activity prior to diagnosis of breast cancer and subsequent all-cause mortality

Exposure	Outcome	Increment	RR (95% CI)	I <sup>2</sup>	No. of studies	No. of deaths
<b>Physical activity</b>	All-cause mortality	Total PA H vs L	0.83 (0.62–1.12)	23%	2	505
		Recreational PA H vs L	0.74 (0.67–0.83)	5%	8	2,892
<b>Foods containing fibre</b>	All-cause mortality	Per 10 g/day	0.68 (0.55–0.84)	0%	3	443
<b>Greater body fatness</b>	All-cause mortality	Per 5 kg/m <sup>2</sup>	1.17 (1.13–1.21)	13%	14	6,261
<b>Total fat</b>	All-cause mortality	Per 10 g/day	1.19 (1.01–1.41)	82%	4	178
<b>Saturated fatty acids</b>	All-cause mortality	Per 10 g/day	1.66 (1.26–2.19)	32%	3	178

## Summary of CUP 2014 meta-analyses of diet, nutrition and physical activity after diagnosis of breast cancer and subsequent and all-cause mortality

Exposure	Outcome	Increment	RR (95% CI)	I <sup>2</sup>	No. of studies	No. of deaths
<b>Physical activity</b>	All-cause mortality	Total PA H vs L	0.63 (0.41–0.97)	44%	3	514
		Total PA per 10 MET-h/week	0.90 (0.79–1.03)	79%	3	514
		Recreational PA H vs L	0.61 (0.50–0.74)	46%	5	2,337
		Recreational per 10 MET-h/week	0.81 (0.73–0.90)	64%	5	2,337
<b>Foods containing fibre</b>	All-cause mortality	Per 10 g/day	0.88 (0.78–0.99)	0%	3	1,092
<b>Foods containing soy</b>	All-cause mortality	Per 10 mg/day	0.91 (0.83–1.00)	68%	3	794
<b>Greater body fatness</b>	All-cause mortality	Per 5 kg/m <sup>2</sup>	1.08 (1.01–1.15)	0%	4	1,703

PA = physical activity, H vs L = highest level compared with lowest levels,  
MET-h = metabolic equivalent hours

## Summary of published pooled and meta-analyses – physical activity

Analysis	Outcome	Increment/ Comparison	RR (95% CI)	I <sup>2</sup>	No. of studies	No. of deaths
<b>Lahart, 2015 [56]</b>	All-cause mortality	PA Highest vs lowest	0.52 (0.43–0.64)	54%	8	6,898
<b>Friedenreich, 2016 [54]</b>	Breast cancer-specific mortality	Post-diagnosis PA Highest vs lowest	0.62 (0.48–0.80)	61%	10	1,239
	Recurrence <sup>1</sup>	Post-diagnosis PA Highest vs lowest	0.68 (0.58–0.80)	0%	5	1,377
<b>Beasley, 2012 [59]</b>	All-cause mortality	≥10 MET-hours/ week	0.73 (0.66–0.82)	–	4	1,468
	Breast cancer-specific mortality	≥10 MET-hours/ week	0.75 (0.65–0.85)	–		971
<b>Schmid, 2014 [57]</b>	Breast cancer-specific mortality	5 MET-hours/week	0.94 (0.92–0.97)	–	4	–
		10 MET-hours/week	0.89 (0.85–0.94)	–		–
		15 MET-hours/week	0.84 (0.78–0.91)	–		–
	All-cause mortality	5 MET-hours/week	0.87 (0.80–0.94)	–		–
		10 MET-hours/week	0.76 (0.64–0.89)	–		–
		15 MET-hours/week	0.66 (0.62–0.84)	–		–

<sup>1</sup> Studies used different definitions of recurrence, so it is difficult to interpret the combined effect of these results.

PA = physical activity, MET-hours = metabolic equivalent hours

## Risk of overall mortality, comparing highest versus lowest category of pre- or post-diagnosis dietary exposure

Analysis <sup>1</sup>	Outcome	Increment/ Comparison	RR (95% CI)	I <sup>2</sup>	No. of studies	No. of deaths
<b>Vegetables</b>	All-cause mortality	Highest vs lowest	0.86 (0.79–0.94)	43%	21	–
<b>Fish</b>	All-cause mortality	Highest vs lowest	0.85 (0.78–0.93)	0%	7	–
<b>Alcohol</b>	All-cause mortality	Highest vs lowest	1.08 (1.02–1.16)	70%	63	–
<b>Diet quality</b>	All-cause mortality	Highest vs lowest	0.78 (0.72–0.85)	0%	8	–
<b>Prudent or healthy dietary pattern<sup>2</sup></b>	All-cause mortality	Highest vs lowest	0.81 (0.67–0.98)	44%	8	–
<b>Western dietary pattern<sup>3</sup></b>	All-cause mortality	Highest vs lowest	1.46 (1.27–1.68)	0%	8	–

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<sup>1</sup> Random effects analyses data only <sup>2</sup> Includes high intakes of fruit and vegetables, whole grains, poultry and low-fat dairy products.

<sup>3</sup> Based on high intakes of red and processed meat, refined grains, sweets and desserts, and high-fat dairy products.